



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: DiMascio, Felice )  
Serial No: 10/065,259 ) Group Art Unit: 1754  
Filed: September 30, 2002 )  
For: SYSTEM AND PROCESS FOR )  
PRODUCING HALOGEN OXIDES )

VIA FACSIMILE: (703) 872-9306  
Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 81.131

I, Felice DiMascio, declare and state that:

1. I am the inventor of the invention claimed in the above-identified patent application.
2. I conceived in the United States the invention disclosed and claimed in the above-identified patent application sometime prior to August 2, 2001 and then diligently reduced the invention to practice in the United States sometime prior to August 2, 2001.
3. As evidence in support of this prior conception and reduction to practice, submitted herewith is the following evidence of activity done in the United States.

(a) Exhibit A is a copy of lab notebook data detailing experiments done by a laboratory technician under my direction at Halox in the United States sometime prior to August 2, 2001.

(b) Exhibit B is a copy of lab notebook data detailing additional experiments done by a laboratory technician under my direction at Halox in the United States sometime prior to August 2, 2001.

4. The lab notebook data of Exhibits A and B show experimental results of a process for generating an aqueous solution containing chlorine dioxide in the absence of electricity. The experiments included first contacting an aqueous sodium chlorite solution (an alkali metal chlorite solution) with a cation exchange resin in the hydrogen form to generate chlorous acid (a halous acid) and then contacting the resulting solution with a catalytic material to produce the aqueous solution containing chlorine dioxide (a halogen oxide).

5. In Exhibit A, the data in the column marked "Prod." represents the amount of chlorine dioxide produced in parts per million by the process. Cells 640, 604, and 600 identify a specific cassette employed during the process that included layers of the cation exchange resin and the catalytic material. As stipulated above, in each instance, an aqueous sodium chlorite solution was prepared and first flowed from the cation exchange resin layer to the layer containing the catalyst material to produce the aqueous solution containing chlorine dioxide. The lab notebook data also included a comparison with chlorine dioxide electrolytically produced, e.g., Cells 639 and 615.

6. In Exhibit B, a 40 hour test was conducted. The amount of chlorine dioxide produced by the process was measured over the 40 hour period. The process included first contacting an aqueous sodium chlorite solution with a cation exchange resin in the hydrogen form to generate chlorous acid and then contacting the resulting solution with a catalytic material to produce the aqueous solution containing chlorine dioxide.

7. The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date:

1/25/05

  
\_\_\_\_\_  
Felice DeMascio

## EXHIBIT A

OBJECT pH Test No electricity

Notebook No. \_\_\_\_\_

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Cell #	P <sub>cell</sub>	P <sub>prod</sub>	P <sub>flow</sub>	P <sub>h</sub>	P <sub>sl</sub>	Ch <sub>eff</sub>
Cell # 640						
	623	459	110	1.76	5	50
	563	571	152	1.79	7	75
	572	564	148	1.79	7	70
Cell # 639						
12	639	664	156	2.62	13	108
16	661	555	126	2.58	11	100
19	583	606	156	2.65	12.5	115
Cell # 615						
18	564	538	143	3.14	13	135
18	524	538	154	3.51	14	145
18	507	507	150	3.67	14	135
18	523	530	152	3.43	13	135
Cell # 640						
	619	536	130	2.56	6.5	65
	519	519	150	3.21	7	75
	353	341	148	5.87	7	70
H = 2.00						
	331	324	147	5.65	7	70
	528	503	143	3.16	7	75
	558	539	185	2.70	7	75
I know						
	594	554	140	2.30	7	75
	594	575	165	2.23	8	80
Cell # 594						
9	601	605	157	2.37	16	120
10	598	622	156	2.41	16	120
I know						
19	560	605	162	2.51	16	110
19	563	578	164	2.23	15	105

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Slaned

Date

Slaned

Date

Cell #	PROD	PROD	FLOW	PA	PS	CAT
Cell # 604						
11	591	591	150	2.33	14.5	100
		80%				
cell # 604						
pH = 7.65						
	574	673	176	2.51	10	84
	478	599	188	3.04	10	86
	121	143	178	5.40	9.5	82
pH = 7.54						
	83	80	146	5.72	7.5	70
	67	65	146	6.01	7.5	70
	54	60	166	5.89	8.5	78
pH = 3.19						
	61	61	150	6.26	8	70
	70	69	148	6.60	8	70
pH = 2.04						
	146	148	152	6.52	8	70
	272	268	148	6.21	8	75
pH = 1.38						
Cell # 600	690	690	150	1.55	8	75
pH = 7.65						
	302	399	198	4.00	9	90
	117	170	218	5.35	9	90
	88	117	200	5.67	8	84
pH = 7.54						
	102	97	144	5.80	6	66
	86	80	140	5.83	6	66
pH = 3.19						
	73	74	152	6.32	6.5	65
	77	77	150	6.47	6.5	60
pH = 2.04						
	145	144	149	6.11	6.5	70
	249	249	150	6.73	6.5	70
pH = 1.38						
	623	581	140	1.57	6.5	70

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Date

## EXHIBIT B

PROJECT

40 hour Test Cont.

No1

Continued From Page

Volt	Prod	Prod	Flow	pH	Feed pH	gas	cat
	411	411	150	6.31	2.36	9	100
Stopped 5:00 pm.							
NO GAS ACCUMULATION FORMATION IN MIXER.							
02/28/00							
9:00 am.	567	578	153	2.31	2.26	7	85
Stopped at 11:30 AM.							
Restarted	02/29/00		6	11:00 AM			
1:30 pm	503	500	149	2.71	2.31	8.5	85
stopped at 5:00 pm							
03/01/00							
start	6	8:00 AM					
9:15 AM	537	537	150	2.51	2.18	8	85
10:00 AM	545	545	150	2.67	2.32	8.5	85
4:30 pm	506	513	152	2.84	2.21	8	80
03/02/	Ran for 8 hours						
03/03/00							
10:15 AM	525	528	151	2.92	2.23	7	80
4:00 pm	496	496	150	5.25	2.24		

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Date

Signed

Date



40 hour test continued: Start 12:00 PM 02/23/00  
 Feed water pH should be 2.05  
 → Official start 12:00 pm 2/23/00  

Prod Conc	Calc. Prod	Flow	pH	pu	Calc
716	611	128	2.49	6	7.5
585	569	146	2.41	6.5	8.5

2/24/00

Time	Prod Conc	Calc. Prod	Flow	pH	Feed pH	pu	Calc
9:00 AM	578	539	140	2.94	2.36	6	4.1

10:30 AM	472		192	4.51	2.39	6	3
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10 ml HCl added to feed water

11:30 AM	469	475	152	4.49	2.38	6.5	8
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12:00 pm	502	495	148	3.73	2.18	6.58	8.5
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20 ml HCl

2:00 pm	596	636	160	2.61	2.22	7	8
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4:30 pm	732	556	114	2.33	2.03	6.5	8
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2/25/00

Start 8:00 AM

9:00 AM	555	548	148	2.44	2	6.5	8
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11:30 AM	521	507	146	2.72	2.09	7.5	8.5
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Stopped at 12:00 pm

Restarted 2:00 pm

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